

VORONOV, A.A., doktor tekhnicheskikh nauk, redaktor; VORONOV, A.A., kandidat tekhnicheskikh nauk, redaktor; KOGAN, B.Ya., kandidat tekhnicheskikh nauk, redaktor; KOTEL'NIKOV, V.A., kandidat tekhnicheskikh nauk, redaktor; LINTOV, A.M., doktor fiziko-meditinskikh nauk, redaktor; MEYEROV, M.V., doktor tekhnicheskikh nauk, redaktor; NAUMOV, B.N., redaktor; PIETROV, B.N., redaktor; SOLODNIKOV, V.U., doktor tekhnicheskikh nauk, redaktor; TRAPEZNIKOV, V.A., redaktor; KHRAMOV, A.V., kandidat tekhnicheskikh nauk, redaktor; TSYPKIN, Ya.Z., doktor tekhnicheskikh nauk, redaktor; VORONOV, A.A., redaktor; PEVZNER, R.S., tekhnicheskiy redaktor.

[Proceedings of the Second All-Union Conference on the theory of automatic control] Trudy vtorogo Vsesoyuznogo soveshchaniia po teorii avtomaticheskogo regulirovaniia.

(Continued on next card)

AYZERMAN, N.A. doktor tekhnicheskikh nauk, redaktor (Cont'd) Card 2.

Vol.3 [Methods and means of experimental research on systems of automatic control. Bibliography on the theory of automatic control and related problems] Metody i sredstva eksperimental'nogo issledovaniia sistem avtomaticheskogo regulirovaniia. Bibliografiia po teorii avtomaticheskogo regulirovaniia i smezhnym voprosam. 1955. 351 p. (MLRA 9:1)

1. Chlen-korrespondent AN SSSR(for Petrov, Trapeznikov) 2. Vsesoyuznoye soveshchaniye po teorii avtomaticheskogo regulirovaniya 2d, Moscow, 1953.  
(Automatic control) (Bibliography--Automatic control)

VORONOV, A.A.

AYZERMAN, M.A., doktor tekhnicheskikh nauk, redaktor; VORONOV, A.A., kandidat tekhnicheskikh nauk, redaktor; KOGAN, B.Ya., kandidat tekhnicheskikh nauk, redaktor; KOTEL'NIKOV, V.A., kandidat tekhnicheskikh nauk, redaktor; LETOV, A.M., doktor fiziko-matematicheskikh nauk, redaktor; LOSSIYEVSKIY, V.L., doktor tekhnicheskikh nauk, redaktor; MEYEROV, M.V., doktor tekhnicheskikh nauk, redaktor; NAUMOV, B.N., redaktor; PETROV, B.N., redaktor; SOLODNIKOV, V.V., doktor tekhnicheskikh nauk, redaktor; TRAPEZNIKOV, V.A., redaktor; XHRAMOV, A.V., kandidat tekhnicheskikh nauk, redaktor; TSYPKIN, Ya.Z., doktor tekhnicheskikh nauk, redaktor; PEVZNER, R.S., tekhnicheskiy redaktor.

[Transactions of the Second All-Union Conference on the Theory of Automatic Control. Trudy vtorogo Vsesoiuznogo soveshchaniia po teorii avtomaticheskogo regulirovaniia. Moskva. Vol.2 [Problem of quality of dynamic precision in the theory of automatic control] Problema kachestva i dinamicheskoi tochnosti v teorii avtomaticheskogo regulirovaniia. 1955. 536 p. [Microfilm] (MLRA 9:1)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki. 2. Chlen-korrespondent AN SSSR (for Petrov and Trapeznikov) (Automatic control).

VORONOV, A.A.

AYZERMAN, M.A., dokt. tekhn. nauk, redaktor; VORONOV, A.A., kandidat tekhn. nauk, redaktor; KOGAN, B.Ya., kandidat tekhn. nauk, redaktor; KOTEL'NIKOV, V.A., kandidat tekhn. nauk, redaktor; LETOV, A.M., dokt. fiz.-mat. nauk, redaktor; LOSSEYEVSKIY, V.L., dokt. tekhn. nauk, redaktor; TRAPENNIKOV, A.V., kand. tekhn. nauk, redaktor; NAUMOV, V.A., redaktor; MEYEROV, M.V., dokt. tekhn. nauk, redaktor; NAUMOV, B.N., redaktor; PETROV, B.N. redaktor; SOLODOVNIKOV, V.V., dokt. tekhn. nauk, redaktor; TSYPKIN, Ya.Z. dokt. tekhn. nauk, redaktor PEVZNER, R.S., tekhn. redaktor.

[Proceedings of the Second All-Union Conference on the Theory of Automatic Control.] Trudy Vtorogo Vsesoiusnogo soveshchaniia po teorii avtomaticheskogo regulirovaniia. Moskva, Izd-vn Akad. nauch. SSSR. [Vol. 1 Problem of continuous and periodic operations in the theory of automatic control] Vol.1 Problema ustoychivosti i periodicheskikh rezhimov v teorii avtomaticheskogo regulirovaniia. (MERA 8:8) 1955. 603 p.

1. Chlen korrespondent AN SSSR (for Trepesnikov, Petrov) 2. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

124-1957-1-118

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 13 (USSR)

AUTHOR: Voronov, A. A.

TITLE: Methods for the Design of Transitional Processes From Given Frequency Characteristics and for the Determination of the Frequency Characteristics for Given Transitional Processes  
(Metody postroyeniya perekhodnykh protsessov po chastotnym kharakteristikam i chastotnykh kharakteristik po perekhodnym protsessam)

PERIODICAL: Tr. 2-go Vses. soveshch. po teorii avtomat. regulirovaniya.  
Vol II. Moscow-Leningrad, Izd-vo AN SSSR, 1955, pp 41-52

ABSTRACT: A concise review of the works of USSR and foreign authors is presented on the following subjects: The development of the frequency methods; the various methods for the computation of frequency characteristics of given transitional processes from their respective curves; the construction of the principal frequency characteristic; and the establishment of system parameters from the frequency characteristics and transitional processes.

Card 1/1

1. Mathematics    2. Scientific reports--Review    A. M. Yegorov

VORONOV, A. A.

AID P - 2366

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 29/30

Authors : Babakov, N. A., Prof., Tsyplkin, Ya. L., Prof., Shumilovskiy, N. N., Prof., and others, members of the Chair of Automatic Control and Regulation of the All-Union Correspondence Institute of Electrical Engineering

Title : A. A. Voronov. Elementy Teorii Avtomaticheskogo Regulirovaniya (Elements of the Theory of Automatic Regulation). 2nd Ed., revised and supplemented, 471 pp., 1954, Military Publishing House of the Ministry of Defense of the USSR (Book review).

Periodical : Elektrичество, 5, 87-88, My 1955

Abstract : The authors of the book review discussed it at the meeting of the members of the chair. After a systematic discussion of every chapter, the authors conclude that the book presents a valuable contribution to the presentation of this new and rapidly developing branch of

AID P - 2366

Elektrichestvo, 5, 87-88, My 1955

Card 2/2 Pub. 27 - 29/30

engineering. Its most important deficiencies are its insufficient development of the theory of non-linearity and that not enough numerical examples are given. Otherwise, the book is highly recommended and was approved by the Ministry of Culture of the USSR.

Institution: None

Submitted : No date

VORONOV, A.A.

All-Leningrad seminar on the theory of automatic control, 1953-  
1954. Avtom. i telem. 16 no.3:300-306 My-Je '55. (MIRA 8:10)

1. Predsedatel' Orgbyuro seminara  
(Automatic control--Study and teaching)

VORONOV, A.A.; PERVOZVANSKIY, A.A.; SEMENOV, V.V.

Electrodynamic models of hydraulic turbines and their speed regulators. Izv. AN SSSR. Otd. tekhn. nauk no. 1:30-46 Ja '56. (MLRA 9:5)  
(Hydraulic turbines--Models)

VORONOV, A.A.

GOREK, Nikolay Filippovich, IVIN, Mikhail Yefimovich, VORONOV, A.A.  
nauchnyy redaktor; DZHALALEKOVA, L.A., otvetstvennyy redaktor;  
SUSLEMNIKOVA, N.M., tekhnicheskiy redaktor

[Stories about automatic apparatus and machinery] Rasskazy ob  
avtomatike. Nauchnyi red. A.A.Voronov. Leningrad, Gos. izd-vo  
detskoi lit-ry, 1957. 174 p. [Microfilm] (MLRA 10:6)  
(Machinery, Automatic) (Automatic control)

VORONOV, A.A.

KOSTENKO, M.P.; NEYMAN, L.R.; SMIRNOV, V.S.; ZAITSEV, I.A.; SIDEL'NIKOV, V.V.;  
VORONOV, A.A.

Professor B. I. Domanskii; on his 70th birthday. Elektrichestvo  
no.3:95 Mr '57. (MLRA 10:4)  
(Domanskii, Boris Iosifovich, 1887- )

VORONOV, A. A.

103-7-4/ii

AUTHOR  
TITLE

VOHONOV, A.A.

Approximate Definition of self-excited Oscillations transient in  
Certain Automatic Control Non-Linear Systems.  
(Priblizhennoye opredeleniye protessa ustavovleniya avtokolebaniy  
v nekotorykh nelineynykh sistemakh avtomaticheskogo regulirovaniya  
'Russian')

PERIODICAL

ABSTRACT

A method for the approximate determination of the process of changes  
of the amplitude and the phase of the background overtone in the  
case of self-excited oscillations in some non-linear systems is in-  
vestigated for conditions where this change takes place with suf-  
ficient slowness. The author shows how to approximate an equation  
of higher order by means of two non-linear equations of first or-  
der which are similar to those of N.N.Bogolyubov (Sbornik trudov  
Instituta stroitel-noy mehaniki AN USSR, Nr 10, 1949) obtained for  
a system of second order. The author shows how to obtain relatively  
easily an approximate solution of the problem by means of an occa-  
sionally steady approximation of a certain function (a) obtained  
in the course of the solution of the problem. This method often of-  
fers sufficient exactness even in those cases where the oscilla-  
tions practically fade after 1-3 periods. An example is given by  
way of explanation and in the end the author explains the disphce-  
ment law for the operator of differentiation.

Card 1/2

Approximate Definition of Self-Excited Oscillations 103-7-4/11  
Transient in Certain Automatic Control Non-Linear Systems.

(7 illustrations and 5 Slavic references).

ASSOCIATED Not Given.  
PRESENTED BY  
SUBMITTED 21.9.1956  
AVAILABLE Library of Congress.  
Card 2/2

Seminar on the Automatic Control Theory in Leningrad.  
(1955-1956)

103-10-9/10

On November 1, 1956, A.A.Voronov discussed a method of approximation for the determination of the stabilization process of self-oscillations in some linear systems.

On November 29, 1956, A.D.Maksimov discussed the "Precision of the First Approximation in the Case of a Linearizing Action of the Non-Linear Automatic Systems by Means of Vibration".

AVAILABLE: Library of Congress

Card 2/2

SOV/30-58-7-19/49

AUTHOR: Voronov, A. A.

TITLE: Conference on the Optimization of Systems With Automatic Control  
(Konferentsiya po optimizatsii sistem avtomaticheskogo upravleniya)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 7, pp. 96 - 97 (USSR)

ABSTRACT: Upon invitation of the American Association of Mechanical Engineers in Newark(N'yuark), Delaware(Delaver) a delegation of the AS USSR consisting of A.A.Voronov, V.D.Pavlov, A.B. Chelyustkin attended this conference. The Department of Apparatus and Regulators held its 4<sup>th</sup> conference from April 2 to April 4. The conference was of great interest to the Soviet Scientists since it enabled them to familiarize themselves with the working methods of the American engineers and scientists in the new field of the theory of automatic regulation. Further, the individual reports delivered by the American participants are listed. The Soviet Delegates also delivered reports; A.B. Chelyustkin spoke on control systems with correlation-correction actions. A.A.Voronov explained the principle of action of the cipher program device which was developed in the Institute

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Conference on the Optimization of Systems With Automatic Control SOV/30-58-7-19/49

of Electromechanics AS USSR (Institut elektromekhaniki Akademii nauk SSSR) After the end of the conference, the delegates visited a mineral oil refinery.

Card 2/2

ANISIMOV, Vladimir Ivanovich; VAVILOV, Aleksandr Aleksandrovich; FATEYEV,  
Aleksandr Vasil'yevich, prof., doktor tekhn.nauk; VORONOV, A.A.,  
doktor tekhn.nauk, retsensent; KEPPELMAN, V.G., dozent, kand.  
tekhn.nauk, red.; SOBOLEVA, Ye.H., tekhn.red.

[Collection of examples and problems on the linear automatic control  
theory] Sbornik primerov i zadach po lineinoi teorii avtomati-  
cheskogo regulirovaniia. Pod red. A.V.Pateeva. Moskva, Gos.energ.  
izd-vo, 1959. 254 p.  
(Automatic control)

UORONOV, A.A

卷之三

三

**THE 1906 EARTHQUAKE**  
BY  
**WILLIAM H. DAVIS**

**General Ed.** L.M. Eddy; **Professor** R.F. Babbitt; **Candidate of Technical Education Board**, Vol. 2a. V. Miller; **Candidate of Technical Sciences**, Doc. O.P. Gerasimov; **Editor**, N. A. Chichin. **Editor**, N. A. Chichin. **Editor**, N. A. Chichin.

Editor of Publishing News: Mr. W. C. Gurnee, 100 Franklin Street, Boston.  
Sales Manager: Mr. W. C. Gurnee, 100 Franklin Street, Boston.  
Subscription Manager: Mr. W. C. Gurnee, 100 Franklin Street, Boston.  
Foreign Agent: Mr. W. C. Gurnee, 100 Franklin Street, Boston.

**Karen:** This book is intended for teachers, parents,

**CONTINUED:** The next table sets the emphasis on the importance of *reducing* idle time—on prevention and potential improvement. In the importance of work idle time is explained, first, in plants as it developed, then, their uses and methods, second, long production runs, and, finally, effects resulting from reductions of idle time.

of education, especially in language problems, as well as in other fields. In addition, a number of the original experiments were described, and a number of the methods proposed. Some of the criticism involved in the Army meetings was by British and Canadian experts.

permanencies are mentioned. There are 37 references.  
LAWRENCE T. M., JR. Experience Gained in the Use of Hydrochloric Acid Bases in Art Protection

PARADISE, N.Z., by V.H. TRIDENT. V.H. Trident's *Spiralistic Copying Machine*

卷之二

SPECIAL PROGRAM COMMITTEE

Numerical Program Control for



十一

INTERACTION IS NOT PREDICTION BASED ON THE  
SINGLE PREDICTOR METHOD

- |   |     |
|---|-----|
| Microfaser-12... Group Method as the Basis of Automation in<br>Text Production  | 353 |
| Kitsap Corp., The New Model 1100 Single-Spiralite Autowriter<br>Prints Latin  | 354 |
| W.H. Gandy and G.T. Pendergast, Mechanization of<br>Extremely Difficult Processes at the Largest Laundry<br>(First Installment) | 355 |

AVAILABLE: Library of Congress  
Card 5/5

BOBROV, V.M.; VORONOV, A.A.; GLERBOV, I.A.; IVANOV, V.I.; KARPOV, G.V.;  
KASHTELYAN, V.Ye.; SEMENOV, V.V.; SIROTKO, V.K.; SIRYK, N.S.;  
SUKHANOV, L.A.; URUSOV, I.D.; FETISOV, V.V.; POMINA, Ye.N.;  
KOSENKO, M.P., akademik, red.; DOLMATOV, P.S., red.izd-va;  
SMIRNOVA, A.V., tekhn.red.

[Electrodynamic modeling of power engineering systems] Elektro-  
dinamicheskoe modelirovanie energeticheskikh sistem. Pod red.  
M.P.Kostenko. Moskva, 1959. 406 p. (MIRA 13:2)

1. Akademiya nauk SSSR. Institut elektromekhaniki.  
(Electric networks--Electromechanical analogies)

67485

16.6800

AUTHOR: Voronov, A.A. (Leningrad)

SOV/24-59-5-16/24

TITLE: Digital Difference Analyzers for Programming Motion  
Along Parabolic Curves

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh  
nauk, Energetika i avtomatika, 1959, Nr 5, pp 147-155 (USSR)

ABSTRACT: The first three pages give a general analysis of the use  
of finite-difference equations with digital computers.  
From Eq (7) onwards the discussion relates to the curve  
represented by Eq (5). The  $\Delta^2 y[0]$  given by (7) are  
in general fractional, so they must be rounded off. In  
general, the  $\Delta^l y[0]$  are replaced by  $\Delta^l y[0] +$   
 $\delta \Delta^l y[0]$ ; the equations down to (8) relate to the  
resulting errors. Eq (8) itself relates to the number  
of places required in the binary numbers with which the  
computer works. The table gives the  $n_{max}$  permissible  
for various values of  $r$  and  $k$ . It is clear from the  
result that a fourth-degree curve is in practice unusable.  
The section following the table deals with an improvement  
to the approximation; the theoretical curve the computer  
has to reproduce is raised by half a step, because the  
actual curve on average falls half a step below the ✓

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SOV/24-59-5-16/24

Digital Difference Analyzers for Programming Motion Along  
Parabolic Curves

theoretical one. The final result (the corrections to  
the coefficients) is given in Eq (9).

The last section deals very briefly with equations that  
are the inverse of polynomials; here the gradient of  
the curve may be very large, and so the error may be  
excessive. Fig 3 gives the block diagram of a device

to generate Eq (11); in this way it is possible to  
overcome the difficulty, as the subsequent working shows.

Card 2/2 There are 3 figures, 1 table and 6 references, of which  
4 are Soviet and 2 English.

SUBMITTED: July 10, 1959

W

VORONOV, A.A.; SOKOLOV, G.N. (Leningrad)

Digital-integrator device for programming second order curves. Avtom.i  
(MIRA 12:3)  
telem. 20 no.2:176-183 F '59.  
(Milling machines--Numerical control)

VORONOV, A. A.

report to be presented at the 1st Int'l Congress of the Int'l Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

VORONOV, A. A., YERZOV, S. L., and BOGDANOV, G. N. - "Some problems of the synthesis and analysis of digital analogues for automatic control".  
YEFROYMOVICH, Yu. Ye. - "Complex automation of technological processes of melting steel in arc furnaces".  
ZALMANOV, Le. A. - "Bases of the theory and calculation of elements of automatic pneumatic machines".  
SUBIKH, V. O. - "The problem of digital program control of metal cutting machines".

PHASE I BOOK EXPLOITATION SOV/5094

Voronov, Avenir Arkad'yevich, A. R. Garbuzov, B. L. Yermilov, M. B.  
Ignat'yev, G. G. Kornitenko, G. N. Sokolov and Yang Hsi-Tseng

Tsifrovyye analogi dlya sistem avtomaticheskogo upravleniya; tsifrovyye  
raznostnyye analizatory (Digital Analogs for Automatic Control Systems;  
Digital Differential Analyzers). Moscow, Izd-vo AN SSSR, 1960. 195 p.  
Errata slip inserted. 7,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut elektromekhaniki.

Ed.: A. A. Voronov, Doctor of Technical Sciences; Ed. of Publishing House:  
I. V. Barkovskiy; Tech. Ed.: V. T. Bochever.

PURPOSE: This book is intended to acquaint scientific and technical personnel with the latest developments in the field of computers.

COVERAGE: Digital differential analyzers are a relatively new development in the field of computers and are not yet well elaborated theoretically. Some of the newest developments in combining universal digital machines

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Digital Analogs for Automatic (Cont.)

SOW/5094

with nonlinear interpolators, such as the Ferranti interpolator, are as yet unknown to Soviet readers. While the Soviet literature contains several works describing the principles of construction and operation of differential analyzers intended for operation as computers, the main emphasis in this book is on general methods of synthesizing those machines which are intended to work as systems of automatic control, and also on problems of accuracy in operation. At present digital analogs are used mostly for programmed control of metalworking machines, where several operations, such as preparing data for control, feeding them into the computer, the computing process, and the process of control, are involved. The book investigates only the computing units of the control system. The authors state that the error of integration can be reduced by increasing the number of columns of multidigit numbers in the addend registers or by transition to more accurate, though more complicated, algorithms of approximate integration. However, they find that this complicates the system, and suggest a method which permits simplifying the system while maintaining its accuracy; that is, proceeding from difference, instead of differential, equations. A digital analog based on such principles should be called a digital "difference" analyzer instead of "differential" analyzer. The book discusses problems

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Digital Analogs for Automatic (Cont.)

SOV/5094

of synthesis and analysis of both difference and differential equations. Ways to reduce errors and simplify the arrangement of such computers are indicated. The book attempts to present certain theoretical developments in this field and as a first attempt does not claim to give a full solution of the problem. It also includes some general information on systems of computation and on their basic units and presents examples of difference analyzers developed at the Institute of Electromechanics, AS USSR. The introduction, pars. 1-6 and 8 of Ch. III, Ch. IV, pars. 1 and 4 of Ch. V, and pars. 3 and 4 of Ch. VIII were written by A. A. Voronov; pars. 1 and 2 of Ch. VIII by A. R. Garbuzov; Ch. I by B. L. Yermilov; par. 7 of Ch. III and Appendix I by M. B. Ignat'yev; Ch. II by G. G. Kornitenko; and Ch. VI by G. N. Sokolov, all coworkers of the Institute of Electromechanics, AN USSR. Pars. 2 and 3 of Ch. V were written by Yang Hsi-Tseng, coworker of the Academy of Sciences, Chinese People's Republic, and Chapter VII was written jointly by A. A. Voronov and B. L. Yermilov. No personalities are mentioned. There are 76 references: 39 Soviet (including 1 in French and 1 translation) and 37 English.

Card 3/8

VORONOV A.A.

Collected Papers (Cont.)

SOV/4172

Sbornik rabot po voprosam elektromekhaniki, vyp. 3: Energeticheskiye sistemy, 22  
elektromashinostroyeniye, elektricheskaya tyaga, avtomatizirovannyj elektroprivod,  
avtomaticheskiye i telemekhanicheskiye sistemy, elektrosvarochnoye oborudovaniye  
Moscow, Izd-vo AN SSSR, 1960. 314p  
publ. from Akademiyе nauk SSSR. Institut elektromekhaniki

AUTOMATIC AND TELEMECHANICAL SYSTEMS

Voronov, A.A. Use of Digital-Analog Computers for Programming Second Order  
Curves in a Two-Coordinate Automatic Control System

229

The author studies the general structure of simplified programming  
system-interpolators having phase trajectories in the shape of second-  
order curves. He also studies dynamic errors controlling machine tools  
of these systems.

Sidel'nikov, V. V. Use of Matrix Analysis in Investigating Steady Conditions  
of Multiconductor Transmission Lines (A Survey)

242

The author seeks methods of solving telegraph equations which would yield  
a specific algorithm. He uses the methods of matrix calculus to simplify  
the determination of a general solution for telegraph equations of n-con-  
ductor lines.

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VIRCON 77  
S/024/60/000/01/027/028  
E194/E355

AUTHOR: None given

TITLE: General Meeting of the Technical-science Division of the Ac.Sc., USSR (October, 1959)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 1, pp 173-176 (USSR)

ABSTRACT: A general meeting of the Technical-science Division of the Ac.Sc., USSR was held on October 27, 1959, under the presidency of Academician A.A. Blagonravov. Two reports were read on:

- 1) the application of radioactive isotopes and atomic radiation to the examination<sup>14</sup> of flotation processes, by Corresponding Member of the Ac.Sc. USSR I.N. Plaksin;
- 2) specialised digital-analogue computers for programme control of a cutting tool,<sup>14</sup> by Doctor of Technical Sciences A.A. Voronov.

I.N. Plaksin described how the laboratory for the concentration of ores of rare elements in the Institut gornogo dela (Mining Institute) of the Ac.Sc. USSR (of which he is in charge) had studied the flotation process by using reagents containing radioactive tracers carbon 14, sulphur 35, calcium 45, phosphorus 32 and chromium 51. The

Card1/7 laboratory selects a microradiographic analytical procedure

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General Meeting of the Technical-science Division of the  
Ac.Sc., USSR (October, 1959)

to regulate the pulverisation cycle at one of the iron-ore flotation plants. The meeting directed the laboratory to extend the application of radioactive isotopes and atomic radiation, both for scientific investigations and for control of production processes in flotation plants. The second report by A.A. Voronov was devoted to new kinds of special computers for automatic control. They are of the digital differential analyser-type and comprise three main types of unit, for integration, addition and multiplication by a constant value. Circuits built up from these three types of units may be used to solve ordinary linear differential equations with constant coefficients. To extend the capability of the computers and to cover modern processes described by certain non-linear equations, additional non-linear units were developed, including units to reproduce non-linear analytical functions. During the course of the work it was found that a number of non-linear functions may be represented by the same linear units. The form of this type of computer is briefly

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General Meeting of the Technical-science Division of the  
Ac.Sc., USSR (October, 1959)

reviewed. It was mentioned that relatively simple, compact and inexpensive computers may be developed for the solution of many practical problems. The power consumption was relatively low.

The main type of mathematical problem that can be solved on digital analogues consists of differential equations and the reproduction of various functional relationships. Many automatic processes include this type of problem, so that the compactness and cheapness of the digital analogue computers becomes important.

To exemplify the use of differential analysers for control systems the reporter described the circuit for reproducing second-order polynomial curves of higher degrees, representing the motion of the planets according to Kepler's law. Various other examples are cited.

A model of the device was tested on a two-coordinate milling machine, type 6441B with a programme-control system developed at the Nauchno-issledovatel'skiy tekhnologicheskiy institut (Technological Scientific-research

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General Meeting of the Technical-science Division of the  
Ac.Sc., USSR (October, 1959)

Institute) in Moscow. An industrial version of the device will be built in 1960. The experimental model operated with an error not exceeding 20  $\mu$ . Other devices are being developed for programme control of automatic flame-cutting machines intended for cutting plates for ships' hulls. The reporter considered that existing differential analysers are best applied to purely mathematical problems although they may be useful for control purposes in particular cases.

In discussion on the report G.A. Antonov noted the applicability of the computers to shipbuilding. A.Ye. Alekseyev recognised the importance of the analogue computer devices for automatic control of railway locomotives.

F.V. Mayorov discussed the uses of various types of computer. He thought that the type of computer described would be mainly useful for the simpler manufacturing operations.

Academician V.S. Kulebakin noted the theoretical interest and novelty of a number of points raised in

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S/024/60/000/01/027/028

E194/E355

General Meeting of the Technical-science Division of the  
Ac.Sc., USSR (October, 1959)

the report.

Engineer Chernyshev pointed out the great practical importance of the theoretical part of the works. The general meeting approved the report of A.A. Voronov. It was recognised that digital differential analysers have a future as small-size computers in production programme control systems and in the control of moving objects. It was also recognised that the analysis of the accuracy of differential analysers is a new theoretical development. The meeting recommended the Institut elektromekhaniki AN SSSR (Institute of Electromechanics of the Ac.Sc., USSR) to continue the work on the theory of the synthesis and analysis of special computers. The work should advance the theoretical investigations of the accuracy of digital analogues and the synthesis of new specialised computers of this type for automatic-control systems.

Card 747

1.7000 10<sup>13</sup>, 10<sup>24</sup>

27982  
S/194/61/000/004/015/052  
D249/D302

AUTHOR: Voronov, A.A.

TITLE: The use of digital computers for programming second order curves in automatic control systems with two coordinates

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 4, 1961, 39, abstract 4 B297 (Sb. rabot po vopr. elektromekhan. no. 3, M.-L., AN SSSR, 1960, 229-241)

TEXT: A description is given of a second order interpolator for preparing programs for machines with digital control. The interpolator reproduces the hyperbola, the parabola and the straight line. Formulae are given for estimating the dynamic error of the regulating systems, and means by which this error can be corrected are indicated. These include the variation of the programming speed and the introduction in the program of correcting pulses. 5 figures. 6 references. [Abstracter's note: Complete translation] X

Card 1/1

TRAPEZNIKOV, V.A., akademik, glav. red.; AYZERMAN, M.A., doktor tekhn. nauk, red.; AGEYKIN, D.I., kand. tekhn. nauk, red.; ARTOEOLEVSKIY, I.I., akademik, red.; BATRACHENKO, L.P., inzh., red.; VORONOV, A.A., doktor tekhn. nauk, red.; GAVRILOV, M.A., doktor tekhn. nauk, red.; DIKUSHIN, V.I., akademik, red.; KARIBSKII, V.V., kand. tekhn. nauk, red.; KOGAN, B.Ya., kand. tekhn. nauk, red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S., akademik, red.; LERNER, A.Ya., doktor tekhn. nauk, red.; LETOV, A.M., kand. tekhn. nauk, red.; MEYEROV, M.V., doktor tekhn. nauk, red.; PETROV, B.N., akademik, red.; PUGACHEV, V.S., doktor tekhn. nauk, red.; SOTSKOV, B.S., red.; STEFANI, Ye.M., kand. tekhn. nauk, red.; KHRAMOV, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.O., kand. tekhn. nauk, red.; CHILIKIN, M.G., doktor tekhn. nauk, red.; NAUMOV, B.N., kand. tekhn. nauk, red.; KASHINA, P.S., tekhn. red.

[Transactions of the International Federation of Automatic Control, 1st International Congress, Moscow, 1960] Trudy I Mezhdunarodnogo kongressa Mezhdunarodnoi federatsii po avtomaticheskemu upravleniiu. Moscow, Izd-vo Akad. nauk SSSR. Vol.2. [Theory of discrete systems, optimal systems, and adaptive automatic control systems] Teoriia diskretnykh, optimal'nykh i samonastraivaiushchikhsia sistem. 1961. 996 p.  
(MIRA 14:9)

1. International Federation of Automatic Control, 1st International Congress, Moscow, 1960. 2. Chlen-korrespondent AN SSSR (for Sotskov)  
(Automatic control)

S/194/61/000/012/016/097  
D201/D303

AUTHOR: Voronov, A. A.

TITLE: Future application of computers in programmed control

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika,  
no. 12, 1961, 1, abstract 12B1 (Sb. rabot po vopr.  
elektromekhan. In-t elektromekhan. AN SSSR, 1961, no. 5,  
3-12)

TEXT: It is shown that until the advent of the digital machine  
tool control technique the programming of position control metal  
machining tools was brought about by either the spacing of arrest-  
ing devices or end cut-outs at the corresponding points of the tra-  
jectory of the working instrument or by setting up a system of cams  
in mechanical automatic systems. With a complex contour of the  
workpiece, the resetting of the machine tool required several work-  
ing hours. The digital pulse-programmed control application seems  
to be most profitable for small-batch and single item production;  
the number of operations in setting the machine tool is reduced to

Card 1/2

S/194/61/000/012/016/097  
D201/D303

Future application of ...

a minimum, but programming remains cumbersome and as before increases the production costs. This is why the earning capacity of digital system of programmed control increases with the quantity of series-production articles. Data produced by American specialists are given which characterize the efficiency of digital programmed control. In order that a system of digital programmed control have potential it was necessary to decrease considerably the number of motor stages, reducing it to the least possible minimum equal to the number of degrees of freedom of the machine movement. The principle of operation of systems with digital position and profile control is given. It is shown that the most suitable seems to be a combined application of digital and of specialized computers of digital-analogue type. The specialized digital-analogue computers are used as non-linear interpolators and are placed in the vicinity of the machine tool. It is shown that some of the basic elements of a computer are trigger counters. In the future, the use of new elements will be of interest. Electric output motors and feedback pick-ups are discussed. / Abstractor's note: Complete translation, /

Card 2/2

16.6800 (1121, 1327, 1329)

32590  
S/569/61/003/000/009/011  
D201/D305

AUTHORS: Voronov, A.A., Yermilov, B.L., and Sokolov, G.N.  
(USSR)

TITLE: Certain problems of synthesis and analysis of digital  
automatic control analogues

SOURCE: International Federation of Automatic Control. 1st  
Congress, Moscow, 1960. Statisticheskiye metody iss-  
ledovaniya. Teoriya struktur, modelirovaniye, termino-  
logiya, obrazovaniye. Moscow, Izd-vo AN SSSR, 1961,  
407 - 420

TEXT: The author analyze the following types of function genera-  
tors: 1) Generation of polynomials. The prototype of this digital  
analogue may be said to be the circuit of a continuous analogue,  
with series connected  $r + 1$  integrators. With a  $y^r(0) = \text{const.}$  in-  
put, such a circuit generates a polynomial of  $t$  of the  $r$ -th degree,  
whose coefficients depend on the initial values of integrands. By  
adding a feed-back, an arrangement may be obtained for reproducing

Card 1/4

32590

S/569/61/003/000/009/011

Certain problems of synthesis and ... D201/D305

the inverse function  $y = \sqrt{n}$ . 2) Generation of function  $Axy + Bx + Cy$ . This problem may be solved using the circuit of B.L. Yermilov for multiplication by each other of two variables (Fig. 2). 3) Generation of circles. The example of digital analogue as evolved by G. N. Sokolov (Fig. 3) is considered. The generation of a circle may also be obtained by the method of B.L. Yermilov. This circuit (Fig. 4) solves

$$y = \sqrt{R^2 - x^2}. \quad (19)$$

It is of interest in that the error, due to limiting the digits, does not exist. The circuit is actually a combination of the squaring and root extracting circuits suggested by B.L. Yermilov and V.V. Semenov. The circuits described show how, from given properties of a problem, a substantial simplification of circuit and its number of components may be obtained. There are 2 tables, 5 figures and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: Anon. Computing machines. Mech. Eng., v. 73, p. 325-327, Apr. 1951; R.E. Sprague, Mathem. Tables and other Aids to Computation, no. 37, p.41-49;

Card 2/A<sub>2</sub>

VORONOV, A.A.

BERG, A.I., glav. red.; TRAHEZNIKOV, V.A., glav. red.; KERKOVICH, D.M.,  
zam. glav. red.; LINSER, A.Ya., doktor tekhn. nauk, prof.,  
zam. glav. red.; AVIN, O.I., red.; AGEYKIN, D.I., red.; kand.  
tekhn. nauk, dots., red.; AYZERMAN, M.A., red.; VENIKOV, V.A.,  
doktor tekhn. nauk, prof., red.; VORONOV, A.A., doktor tekhn.  
nauk, prof., red.; GAVRILOV, M.A., doktor tekhn. nauk, prof.,  
red.; ZERNOV, D.V., red.; IL'IN, V.A., doktor tekhn. nauk,  
prof., red.; KITOV, A.I., kand. tekhn. nauk, red.; KOGAN, B.YA.,  
doktor tekhn. nauk, red.; KOSTOUSOV, A.I., red.; KMINITSKIY,  
N.A., kand. fiz.-mat. nauk red.; LEVIN, G.A., prof. red.;  
LOZINSKIY, M.G., doktor tekhn. nauk, red.; RUSSTYEVSKIY, V.I.,  
red.; MAKSAREV, Yu.Ye., red.; MASLOV, A.A., dots., red.; POKOV, A.A., red.;  
RAKOVSKIY, M.Ye., red.; ROZENBERG, L.D., doktor tekhn. nauk,  
prof., red.; SOTSKOV, B.S., red.; TIMOFEEV, P.V., red.;  
USILAKOV, V.B., doktor tekhn. nauk, red.; FEL'DBAUM, A.A.,  
doktor tekhn. nauk, prof., red.; FROLOV, V.S., red.;  
KHARKEVICH, A.A., red.; KHRAMOV, A.V., kand. tekhn. nauk, red.;  
TSYPLKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN,  
A.B., kand. tekhn. nauk, red.; SHREYDER, Yu.A., kand. fiz.-  
mat. nauk, dots., red.; BOCHAROVA, M.D., kand. tekhn. nauk,  
starshiy nauchnyy red.; DELONE, N.N., inzh., nauchnyy red.;  
BARANOV, V.I., nauchnyy red.; PAVLOVA, T.I., tekhn. red.

(Continued on next card)

BERG, A.I.— (continued). Card 2.

[Industrial electronics and automation of production processes] Avtomatizatsiya proizvodstva i promyshlennaya elektronika. Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Gos.izdatn. izd-vo "Sovetskaia Entsiklopediia." Vol.1. A - I. 1962. 524 p. (MIRA 15;10)

1. Chlen-korrespondent Akademii nauk SSSR (for Sotskov, Kharkevich, Zernov, Timofeyev, Popkov).  
(Automatic control) (Electronic control)

ORSHANSKIY, D.L., gl.red. ARUTYUNOV, K.B., red.; VORONOV, A.A., red.;  
KARANDEYEV, K.B., red.; KARIESKIY, V.V., red.; KRASIVSKIY,  
S.P., red.; KULEBAКIN, V.S., red.; LOGINOV, L.I., red.;  
LUKIN, V.I., red.; MALOV, V.S., red.; PAVLENKO, V.A., red.;  
PETROV, B.N., red.; RAKOVSKIY, M.Ye., red.; SMAGLY, L.V.,  
red.; SMIRNOV, A.D., red.; SOTSKOV, B.S., red.; STEFANI,  
Ye.P., red.; TRAPEZNIKOV, V.A., red.; TSAREVSKIY, Ye.N.,  
red.; LEONOVA, Ye.I., tekhn. red.

[EIKA; encyclopedia of measurements, control and automa-  
tion] EIKA; entsiklopediya izmerenii kontrolia i avtomati-  
zatsii. Moskva, Gosenergoizdat. No.1. 1962. 243 p.  
(MIRA 16:3)

(Instruments) (Automation) (Mensuration)

VORONOV, A.A.; IGNAT'YEV, M.B.

Some uses of digital-analog in automatic control. Sber.rab.po  
vop.elektromekh. no. 15-19 (MIRA 1691)  
(Automatic control) (Electronic differential analyzers)

MORONOV, A. A.; IGNATYEV, M. P.

"On Finding Function Extremums in Automatic System."

Paper to be presented at the IFAC Congress to be held in  
Basel, Switzerland, 27 Aug to 4 Sep 63

IGNAT'YEV, Mikhail Borisovich; VORONOV, A.A., prof., otv. red.;  
SMIRNOVA, M.Ye., red. [REDACTED] NEVA, R.A., tekhn.red.

[Holonomic automatic systems] Gologomnyye avtomaticheskie  
sistemy. Moskva, Izd-vo AN SSSR, 1963. 203 p.  
(MIRA 16:9)

(Automatic control)

VORONOV, A.A. (Leningrad)

Application of linear integral evaluation of surface to some  
nonmonotonous processes. Izv. AN SSSR. otd. tekhn. nauk, tekhn. kib.  
no.3:199-203 My-Je '63. (MIRA 16:7)

(Automatic control)

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN,Ya.Z., doktor tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; FROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KILARKEVICH,A.A., akad., red.; TIMOFEEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiya proizvodstva i promyshlennia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' resheniiia - Teleizmeritel'naiia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)  
J. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

KULEBAKIN, V.S., akademik, otv. red.; PETROV, B.N., akademik, otv. red.; BODNER, V.A., doktor tekhn. nauk, red.; VORONOV, A.A., doktor tekhn. nauk, red.; IVAKHnenko, A.G., red.; ISHLINSKIY, A.Yu., akademik, red.; KOSTYUK, O.M., kand. tekhn. nauk, red.; KRASSOV, I.M., kand. tekhn. nauk, red.; KUNTSEVICH, V.M., kand. tekhn. nauk, red.; KUKHTENKO, A.I., red.; RYABOV, B.A., doktor tekhn. nauk, red.; SIMONOV, N.I., doktor fiz.-mat. nauk, red.; ULANOV, G.M., doktor tekhn. nauk, red.; FEDOROV, S.M., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, red.; CHINAYEV, P.I., kand. tekhn. nauk, red.; KRUTOVA, I.N., kand. tekhn. nauk, red.; RUTKOVSKIY, V.Yu., kand. tekhn. nauk, red.

[Invariancy theory in automatic control systems; transactions] Teoriia invariantnosti v sistemakh avtomaticheskogo upravleniya; trudy. Moskva, Nauka, 1964. 503 p. (MIRA 18:2)

1. Vsesoyuznoye soveshchaniye po teorii invariantnosti i yeye primeneniyu v avtomaticheskikh ustroystvakh. 2d, Kiev, 1962. 2. Chlen-korrespondent AN Ukr. SSR (for Ivakhnenko, Kukhtenko).

L 27245-65 EWT(1)/EWA(b) Pao GS

ACCESSION NR: AT5003900

8/0000/04/000/000/0007/0014

AUTHORS: Voronov, A. A.; Ignat'yev, M. B.

TITLE: Use of differential analyzers in automatic control

SOURCE: Vsesoyuznaya konferentsiya po zadaniyu metodam

po vychislitel'noy tekhnike i vychislitel'noy tekhnike

po vychislitel'noy tekhnike i vychislitel'noy tekhnike

po vychislitel'noy tekhnike i vychislitel'noy tekhnike

TOPIC TAGS: digital differential analyzer, automatic control, automatic machining

ABSTRACT: Comparison of the published data dealing with the use of special-purpose digital differential analyzers for automatic control indicates that in all cases the equipment must incorporate a computing unit that generates a specified function with a prescribed degree of accuracy. Such a unit can be synthesized on the basis of a dif-

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ACCESSION NR: AT5003900

ferential equation, by regarding the computing section as an analog device and then reducing the error due to its discrete action by means of supplementary means. To this end, the authors analyze mathematically the generation of functions of many variables and the determination of their extrema, and then indicate the application of the results to the synthesis of the structure of the computer differential equation. It is recommended that it be used to control three-dimensional surface machines. Drag. art. has: 11 formulas.

ASSOCIATION: None

SUBMITTED: 17 Aug 64

ENCL: 00

SUBJ CODE: DP, IS

NR REF Sov: 019

OTHER: 000

Cord 2/2

VORONOV, Avenir Arkad'yevich; BESEKERSKIY, V.A., doktor tekhn.  
nauk, retsenzent; SEMENOV, V.V., kand. tekhn. nauk,  
nauchn. red.; PAVLOVA, L.S., red.

[Fundamentals of the theory of automatic control] Osnovy  
teorii avtomaticheskogo upravleniya. Moskva, Energiia.  
Pt.1. 1965. 395 p. (MIRA 18:7)

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; TSYPKIN,  
Ya.Z., doktor tekhn. nauk, prof., red.; VORONOV, A.A.,  
prof., red.; AGEYKIN, D.I., doktor tekhn. nauk red.; GAVRILOV,  
M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.;  
SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk,  
red.; PROKOF'YEV, V.N., doktor tekhn. nauk, prof., red.;  
IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I.,  
doktor tekhn. nauk, red.; KRINITSKIY, N.A., kand. fiz. mat.  
nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; USHANOV,  
V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn.  
nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof.,  
red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH,  
A.A., akademik, red. [deceased]; TIMOFEEV, P.V., red.;  
MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN,  
G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.;  
NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I.,  
red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.;  
LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand.  
tekhn. nauk, red.; BLANN, O.M. [Blunn, O.M.], red.; BROYDA, V.,  
inzh., prof., red.; BREKK'L', L. [Brockl, L.] inzh., knad. nauk, red.;  
VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA, M.D., kand.  
tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics]  
Avtomatizatsiya proizvodstva i promyshlennaya elektronika; entsiklo-  
pediya sovremennoi tekhniki. Moskva, Sovetskaia entsiklopedia.  
Vol.4. 1965. 543 p. "IHA 18:6)

GADZHIYEV, S.A.; VORONOV, A.A.; SAZONOV, A.M.

Atrial septal defects; diagnosis and surgical treatment. Khirurgiia  
no.10:48-53 '64. (MIRA 18:8)

1. Kafedra grudnoy khirurgii i anesteziologii (zav. - prof. S.A.  
Gadzhiev), Leningrad.

ORURK, Igor' Aleksandrovich; VORONOV, A.A., doktor tekhn. nauk  
prof., otv. red.

[New methods for the synthesis of linear and certain non-linear dynamic systems] Novye metody sinteza lineinnykh i nekotorykh nelineinnykh dinamicheskikh sistem. Minskva,  
Nauka, 1965. 206 p. (MIRA 18:7)

ACC NR: AM5026037

Monograph

UR/

Voronov, Avenir Arkad'yevich

Principles of the theory of automatic control. pt. 1: Linear systems of control of single values (Osnovy teorii avtomaticheskogo upravleniya. ch. 1: Lineynyye sistemy regulirovaniya odnoy velichiny) Moscow, Izd-vo "Energiya", 1965, 395 p. illus., biblio., index. 22,500 copies printed.

TOPIC AND TAGS: automatic control theory, linear control, linear system, control system stability

PURPOSE AND COVERAGE: This book is intended for teachers and students specializing in the fields of automation and telemechanics. It may also be useful to aspirants in the study of regulation theory, and to engineers and scientists in their study of theoretical problems. This is a revised and enlarged third edition of the textbook "Theoretical elements of automatic regulation" (1st edition 1950; 2nd edition 1954) appearing in three volumes, of which this is the first. Problems of linear theory concerning single single-loop determined systems for regulating a single quantity are discussed. The second volume will discuss a-c modulation systems, delay systems with distribution parameters, the effect of random noise, pulse, and some

Card 1/9

ACC NR:  
AM5026037

nonlinear systems, and sensitivity problems. the third volume will be devoted to special control systems, particularly those of extremum, regulation, optimal, and self-adjusting systems. V. A. Bysekerskiy, Doctor of Technical Sciences, read the manuscript and V. V. Semenov, Candidate of Technical Sciences, edited the book.

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SUB CODE: 09,13/ SUBM DATE: 05May65/ ORIG REF: 187/ OTH REF: 042/

Card 9/9

L 04995-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1) QD  
ACC NR: AT6016442 (A) SOURCE CODE: UR/0000/65/000/000/0351/0360

AUTHOR: Voronov, A. A.; Ignat'yev, M. B.

40  
B+1

ORG: none

TITLE: On searching for function extrema in automatic systems

SOURCE: International Federation of Automatic Control. International Congress, 2d, Basel, 1963. Diskretnyye i samonastraivayushchiye sistemy (Discrete and adaptive systems); trudy kongressa. Moscow, Izd-vo Nauka, 1965, 351-360

TOPIC TAGS: function analysis, digital differential analyzer, computer programming

ABSTRACT: The report examines one of the possible approaches to the problem of synthesizing local systems for automatic search for extrema of functions with many variables. The principle itself of constructing systems reacting to particular derivatives of the desired function with respect to coordinates of the reacting elements is not new, but the method discussed, which was first used in the Electrical Engineering Institute, Leningrad (Institut elektromekhaniki) rose in connection with designing a system of programmed control of metalworking machines, first to reproduce plane curves and then curves lying in a given surface, and made it

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ACC NR: AT6016442

possible not only to indicate the general methods of synthesis of digital differential analyzers for reproducing different types of multidimensional curves, but also to show a very general method of designing a search system for multivariable function extrema. The report treats the structure of differential equations whose solution lies on the intersection of multidimensional surfaces, the finding of function extrema, and searching for function extrema in automatic systems. Possibilities of combined search are briefly treated. Orig. art. has: 11 formulas and 2 figures.

SUB CODE: 09,12/ SUBM DATE: 29Sep65/ ORIG REF: 013/ OTH REF: 001

Card 2/2 *LL*

L 26104-66 EWP(k)/EWT(d)/EWP(h)/EWP(i)/EWP(y) IT ACC NR: AP6004558	SOURCE CODE: UF/103/06/000/001/0151/0157  14 50 73 B
AUTHOR: <u>Voronov, A. A.</u>	
ORG: none	
TITLE: What today's engineer specializing in <u>automation</u> should know	
SOURCE: Avtomatika i telemekhanika, no. 1, 1966, 151-157	
TOPIC TAGS: automation, automatic control, training	
ABSTRACT: Round table discussions on several topic of engineering cybernetics were organized at the conference. Great interest was shown in the discussions entitled "What today's engineer specializing in automation should know." The key participant in the discussions was Professor A. A. Voronov (Institute of Automatics and Telemekhanics), who presented many practical propositions concerning the education of today's engineers specializing in automatic control. Voronov is of the opinion that it is already appropriate to establish several fields of specialization, as for example:	
I. Research engineer with intensive training in mathematics and automatic control theory;	
II. Design engineer for automatic control systems with advanced training in mathematics, control theory, operations research, and with a knowledge of basic principles of automatic control in the most specific fields of industry, energetics, and transportation;	
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ACC NR: AP6004558

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- III. Design engineer for automation devices with normal training in mathematics, advanced training in physics, mechanics, machine elements, and a knowledge of the basic principles needed for designing automation devices;
- IV. Automation engineers in various practical fields (for example, automation specialists in metallurgy, industry, mining, and others). Based on the experience gained in certain Vuzes (Moscow Physico-technical Institute, Leningrad Polytechnic Institute, Moscow Power Engineering Institute), on discussions with prominent lecturers in mathematics and special disciplines, and, in particular, on the opinion of Academician A. N. Kolmogorov, Professors A. A. Lyapunov, Ya. Z. Tsyplkin, G. Yu. Dzhanelidze, and others, A. A. Voronov has proposed the following courses in mathematics and in automatic control theory, and also the number of hours for each course for each of four above-described types of specialization.

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ACC NR: AP6004558

## Training in Mathematics

	Courses	Specialization/hrs			
		I	II	III	IV
1	Mathematical analysis	400	300	200	100
2	Analytic geometry and linear algebra	120	80	50	40
3	Differential, difference, and integral equations				
4	Theory of functions of a complex variable	120	40	40	40
5	Operational calculus	60	40	80	-
6	Mathematical programming	50	30	30	20
7	Probability methods	70	30	-	-
8	Numerical analysis and programming for digital computers	160	50	20	10
9	Mathematical logic and theory of algorithms	80	60	40	20
10	Equations of mathematical physics	60	30	10	-
	Total	1200	700	440	330

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ACC NR: AP6004558

## Training in automatic control theory

	Courses	Specialization/hrs			
		I	II	III	IV
1	Linear theory of automatic control	50	40	30	20
2	Synthesis of correcting circuits	30	20	10	-
3	Nonlinear theory of automatic control	60	40	30	20
4	Theory of discrete control systems	80	50	30	20
5	Theory of optimal control	60	40	20	20
6	Extremal control and adaptive systems	80	50	20	10
7	Theory of multiloop control systems	30	20	10	10
8	Statistical dynamics of control systems	80	50	20	10
9	Theory of relay systems and of finite automata	80	50	10	10
10	Large control systems and operations research	80	50	-	40
	Total	630	410	180	160

SUB CODE: 09, 05 / SUBM DATE: none  
Card 4/4

[TSGB v. 2, no. 4]

1. VORONOV, A. G.
2. USSR (600)
4. Botany - Physiology
7. "Selected works on winter-and drought-resisting plants." Vol. I. Acad. N. A. Maksimov. Reviewed by A. G. Voronov. Sov. kniga no. 12, 1952.
9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

5-212

Vorony, A. G. O perednevoenit travolotyki kontent. [On the hibernating plants.] Botanicheskii Zhurnal, Moscow, 37(2):173-180, 1952. refs. D.L.C. Other made on the hibernation of a large number of species in the Kazakhstan region of Kazakhstan, characterized by a severe climate (large temperature range, short season only, without frost, frequent droughts). Subject Heading: 1. Growing season 2. Kazakhstan Kazakhstan—A.A.

581.03:551.38

43(47)

grass

plants

flora

biology

ecology

botany

Region,

VORONOV, A. G.

PA 34T27

USER / Geography

Hydrology

Limnology

Sep/Oct 1947

"Variations in the Level of the Lakes in Kustanay Oblast of Northern Kazakhstan," A. G. Voronov, 154 pp.

SIZE Vassayur Tazg. Dushsh. VOL. I, PART NO. 5

TIME-CHANGES AMONG THE RISE AND FALL OF THE WATER

LEVEL OF THE VARIOUS LAKES IN THE NORTHERN PART OF Kazakhstan. The author has been able to assemble data

AS FAR BACK AS THE FIRST PART OF THE 18TH CENTURY. He gives the condition of the level and the

METHODS OF THE LAKES ON WHICH OBSERVATIONS WERE KEPT.

FROM THESE STUDIES VORONOV CONCLUDES THAT THERE IS

IC

34T27

USER / Geography (Contd)

Sep/Oct 1947

regular cycle: T - 15 years of very low water followed by 30 - 50 years of average to very high water.

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VORONOV, A.G.

35975

programma nablyudeniy nad perezimovyyvaniyem rasteniy V  
zapovednikakh. ( S primech. red.) nauch. - metod. zapiski  
(sovet ministrov rsfer, glav. upr. po zapovednikam), vyp.  
12, 1949, S. 158-66-bibliogr: 23 nazv.

SO: Letopis' Zhurnal'nykh Statey, No. 49, 1949

VIL'NIKOV, A. N.

Botany - Physiology

Hibernation of herbaceous plants. Bot. zhur. 37, no. 2, March-April 1952. Moskva rec.  
1 March 1949

Monthly List of Russian Accessions, Library of Congress, August 1952. Unclassified.

USSR/Geophysics—Geographers

FD-683

Card 1/1 : Pub. 129 - 23/25

Author : Kibal'chich, O.

Title : Lomonosov lectures, 22-26 April 1954, in the Geographic Faculty

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, Vol. 9, No.3, 155-158, May 1954

Abstract : Prof. P. N. Stepanov, "Experience gained in the work of the 'Ural' Study [Kabinet] of the Chair of USSR Economic Geography. "Docent I. M. textbooks on economic geography of Hungary and Czechoslovakia." Prof. A. G. Voronov, "Principles governing the construction of collections on biogeography and their use in the preparation of geographers." Prof. G. K. Tushinskiy, "Development of stands and exhibits at museums." Prof. I. S. Shchukin, "Development of geomorphology in Moscow University." Prof. N. N. Zubov "theory of the regime of channels and lakes in air regions." Docent A. F. Miroshnuchenko, "Experience gained in compiling complex maps of natural conditions in territories utilized by Kolkhozes."

Institution : --

Submitted : --

VORONOV, A.G.

Characteristics of feeding habits of certain rodents. Zool. zhur.  
33 no.1:184-196 Ja-F '54. (MLRA 7:2)

1. Geograficheskiy fakul'tet Moskovskogo gosudarstvennogo universi-  
teta. (Rodentia) (Animals, Food habits of)

VORONOV, A.G.

Tasks of botanists in connection with the reclamation of virgin  
and fallow lands. Biul. MOIP. Otd. biol. 59 no.4:3-5 Jl-Ag '54.  
(Botany, Economic)  
(Reclamation of land) (MLRA 7:9)

VORONOV, A.G., doktor geograficheskikh nauk professor

Biogeography. Nauka i zhizn' 22 no.7:7-10 J1 '55. (MERA 8:9)  
(Geographical distribution of animals and plants)

VORONOV, A.G.

~~Field methods for studying nutrition of small rodents. Biul. MOIP.~~  
~~Otd. biol. 60 no.5:21-30 8-0 '55.~~  
~~(MIRA 9:4)~~

~~(RODENTIA) (ANIMALS, FOOD HABITS OF )~~

VORONOV, A.G.

Supplementary data on boreal elements in the flora of central  
Kustanay Province. Biul.MOIP. Otd.biol. 61 no.3:91-92 My-Je '56.  
(KUSTANAY PROVINCE--BOTANY) (MIRA 9:10)

SCHRAUTMAN, F.I., prof., red.; VORONOV, A.G., prof., red.; GEPTRASH, V.G.,  
prof., red.; DEMENT'YEV, G.P., prof., red.; PALIY, V.F., prof.,  
red.; POLUSHINA, N.A., kand.biolog.nauk, red.; KOMLYAROV, Yu.L.,  
red.; SARANYUK, T.V., tekhnred.

[Problems in the zoogeography of dry land; papers of a conference  
held in Lvov June 1-9, 1957] Problemy zoogeografii sushi;  
materialy soveshchaniia, sostoiavshegosha vo L'vove 1-9 iunia  
1957 goda. 1958. 359 p. (MIRA 12:6)

1. L'vov. Universitet. 2. L'vovskiy gosudarstvennyy universitet  
im. Iv.Franko (for Strautman, Paliy, Polushina). 3. Moskovskiy  
gosudarstvennyy universitet im. M.V.Lomonosova (for Voronov,  
Dement'yev).

(Zoogeography)

VORONOV, A.G., professor.

Interrelations between the plant and animal worlds. *Friroda* 46  
no.2'95-98 F '57. (MIRA 10:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Ecology)

VORONOV, A.G.

"Mammals of the Black Sea and Sea of Azov" by S.E.Kleinenberg.  
Reviewed by A.G.Voronov. Biul.MOIP. Otd.biol. 62 no.1:101-104  
Ja-F '57. (MLRA 10:6)  
(BLACK SEA--MAMMALS) (AZOV, SEA OF--MAMMALS)  
(KLEINENBERG, S.E.)

VORONOV, A.G.; TAGUNOVA, L.N.

Stages in the formation of phytocenoses [with summary in English].  
Biul. MOIP. Otd. biol. 62 no.5:105-112, S-0 '57. (MIRA 10:11)  
(BOTANY—ECOLOGY)

VOKALULU, F. 67.

AUTHOR: Voronov, A.G. 10-58-2-2B/30

TITLE: A Meeting on Problems of Dry-Land Zoogeography (Soveshchaniye po voprosam zoogeografii sushi)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1958, Nr 2, pp 155-157 (USSR)

ABSTRACT: A conference on dry-land zoogeography was convened in L'vov at the initiative of the L'vov State University imeni Ivana Franko from 1 to 4 June 1957. About 140 representatives of the USSR Academy of Sciences and its branches in the various republics took part. Professor K.V. Stravinskiy of the Lublin University participated as a guest. The conference heard the following reports: A.G. Voronov on "Several Problems of Modern Zoogeography"; B.K. Shtegmann and N.A. Gladkov on the regularity of the distribution of mammals and birds, using the example of "Palearktika"; I.A. Dolgushin on ornithological material of Mediterranean Sea fauna; V.E. Martino on zoogeographical zones around the Mediterranean Sea compared with those of tundras and taigas; E.V. Kumari on the influence of various factors on the changing areals occupied by birds and mammals in the Baltic states and Fennoscandia; K.A. Isakov on the carto-

Card 1/2

A Meeting on Problems of Dry-Land Zoogeography

10-58-2-28/30

graphy of areals occupied by birds; I.I. Barabash-Nikiforov and F.I. Strautman on problems of dynamic changes of areals and their structures; A.G. Bannikov on ecological peculiarities and formation centers of high-mountain fauna, especially with regard to mammals; A.A. Sobolev on the study of the geography of helminths; B.K. Fenjuk on problems of the geography of natural centers of pestilence; I.I. Puzanov on the merits of the Soviet zoo-geographer, A. A. Bremer . It was decided to convene the next conference in Central Asia or Kazakhstan in 1960.

1. Zoogeography—USSR

Card 2/2

VORONOV, A.G.; SOBOLEV, L.N.

The substance and objectives of biogeography. Vop. geog.  
no. 48:5-13 '60. (MIREA 13:7)  
(Geographical distribution of animals and plants)

VORONOV, A.G.

Protection of nature in Czechoslovakia. Vop.geog. no.48:  
282-290 '60. (MIRA 13:7)  
(Czechoslovakia--Natural resources)

VORONOV, A.G.

A year in Yunnan; biogeographical notes. Vest. Mosk. un.  
Ser.5: Geog. 15 no.3:60-66 My - Je '60. (MIRA 13:7)

1. Kafedra biogeografii Moskovskogo universiteta.  
(Yunnan Province—Geographical distribution of animals and plants)

VORONOV, A.G.

Conference on problems of geobotanical mapping. Vest. Mosk. un.  
Ser. 5: Geog. no.2:72-73 Mr-Ap '61. (MIR 14:4)  
(Phytogeography--Congresses)

VORONOV, A.G.; SOBOLEV, L.N.

Conference on problems of vegetation mapping. Izv. Akad. SSSR. Ser. geog.  
no. 3:146-148 My-Je '61. (MIRA 14:5)  
(Phytogeography)

VORONOV, A.G.; KOZHEVNIKOVA, R.K.

Study of the feeding habits of steppe pikas (*Ochotona pusilla*  
Pall.). Biul. MOIP. Otd. biol. 66 no.2:26-32 Mr-Apr '61.  
(MIRA 14:6)

(AMAMGELDY DISTRICT---PIKAS)  
(ANIMALS, FOOD HABITS OF)

VORONOV, A.G.

New stage in the development of geobotanical cartography. Biul.  
MOIP. Otd. biol. 66 no.4:143-145 J1-Ag '61. (MIRA 14:7)  
(PHYTOGEOGRAPHY MAPS)

VORONOV, A.G.

S.I.Korzhinskii; obituary. Biul. MOIP. Otd. biol. 66 no.5:142-146  
(MIRA 14:10)  
S-O '61;  
(KORZHINSKII, SERGEI IVANOVICH, 1861-1900)

BIRSHTEYN, Ya.A.; VORONOV, A.G.; NASIMOVICH, A.A.

Information on recent literature in the fields of biogeography,  
ecological geography, and the protection of nature. Biul. MOIP.  
Otd. biol. 66 no.5:151 S-0 '61. (MIRA 14:10)  
(GEOGRAPHICAL DISTRIBUTION OF ANIMALS AND PLANTS--PERIODICALS)

VORONOV, A.G.

Methods of studying the effect of vertebrates on the vegetative cover  
and soils. Vop. ekol. 4:96-98 '62. (MIRA 15:11)

1. Gosudarstvennyy universitet, Moskva.  
(Vertebrates) (Ecology)

VORONOV, A.G.

Ornithology at the Second All-Union Conference on Continental Zoogeography. *Ornitologija* no.4:469-470 '62. (MIRA 16:4)  
(Ornithological research—Congresses)

VORONOV, Anatoliy Georgiyevich; SOKOLOVA, N.A., red.; GECUGIYEVA,  
G.I., tekhn. red.

[Biogeography; with the elements of biology] Biogeografiia  
(o elementami biologii) Moscow, Izd-vo Mosk. univ., 1963.  
(MIRA 16:12)  
337 p.  
(Geographical distribution of animals and plants)

VORONOV, A.G.

First Academic Conference on Medical Geography. Vest, Mosk. un. Ser. 5:  
Geog. 18 no.2:73-75 Mr-Ap '63. (MIRA 16:3)  
(Medical geography--Congresses)

ACC NR: AT6031456

SOURCE CODE: UR/0000/65/000/000/0032/0047

AUTHOR: Voronov, A. G.

ORG: Geography Department, Moscow State University, Moscow (Geograficheskiy fakultet MGU)

TITLE: Experimental classification of human disease according to the degree and character of its dependence on peculiarities of the natural environment

SOURCE: Konferentsiya po metodam mediko-geograficheskikh issledovaniy. Moscow, 1965. Metody mediko-geograficheskikh issledovaniy (Methods of medicogeographical research); materialy konferentsii. Moscow, 1965, 32-47

TOPIC TAGS: human ailment, disease classification, environment study, deficiency disease, disease control, BIOLOGIC ECOLOGY, DISEASE INCIDENCE

ABSTRACT: The five principal causes of human disease are: biophysical (mainly climatic), geochemical (deficiency), biochemical, toxic and allergic, and microbial factors. Certain aspects of each group are discussed. Microbial diseases are further classified into subgroups according to taxonomic and geographical criteria.

[WA-50; CBE No. 12]

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Card 1/1

ACC NR: AT6031456

SOURCE CODE: UR/0000/65/000/000/0032/0047

AUTHOR: Voronov, I. G.

ORG: Geography Department, Moscow State University, Moscow (Geograficheskiy fakultet MGU)

TITLE: Experimental classification of human disease according to the degree and character of its dependence on peculiarities of the natural environment

SOURCE: Konferentsiya po metodam mediko-geograficheskikh issledovaniy. Moscow, 1965. Metody mediko-geograficheskikh issledovaniy (Methods of medicogeographical research); materialy konferentsii. Moscow, 1965, 32-47

TOPIC TAGS: human ailment, disease classification, environment study, deficiency disease, disease control, BIOLOGIC ECOLOGY, DISEASE INCIDENCE

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[WA-50; CBE No. 12]

SUB CODE: 06/ SUBM DATE: 17Sep65/ ORIG REF: 010/

Card 1/1

MAKSIMOVA, Valentina Fedorovna; VORONOV, A.G., prof., otd. red.;  
DANIL'CHENKO, O.P., red.

[Botanical geography with the fundamentals of general  
botany; methodological instructions for second year cor-  
respondence students of state university geography  
faculties] Botanicheskaiia geografiia s osnovami obshchei  
botaniki; metodicheskie ukazaniia dlja studentov-zaoch-  
nikov II kursa geograficheskikh fakul'tetov gosudarstven-  
nykh universitetov. Moskva, Izd-vo Mosk. univ., 1964.  
(MIHA 18:12)  
36 p.

LEYKINA, Ye.S.; VORONOV, A.G.; SHAKHNAZAROV, I.E.; KHROMOV, A.S.

Filariasis in African countries. Vop geog. no.65(113-136  
'65. (MIHA 18:12)